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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,894	11/26/2003	Hengju Cheng	01PAR001 C3	2906

7590 05/06/2004  
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EXAMINER	
KIANNI, KAVEH C	
ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/722,894	CHENG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kevin C Kianni	2877	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 24-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 32 and 33 is/are rejected.
- 7) ☒ Claim(s) 34 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

- Acknowledgment is made of applicant's cancellation of claims 1-31 and 36-50 in preliminary amendment 11/26/2003

### ***Allowable Subject Matter***

1. Claims 34-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 34 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious said silicon substrate carrier also includes a transparent film layer, on which said at least one alignment mark is deposited, and a window section over which said optoelectronic device is mounted in combination with the rest of the limitations of the base claim. Claims 35 depend on claim 34 and therefore it is also allowable.

### **Claim Rejections - 35 USC § 103**

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams (US 6641310).

Regarding claim 32, Williams teaches an optoelectronic transceiver subassembly for connecting a set of photoactive components with a set of optical fibers supported in an optical ferrule having at least one alignment hole (shown at least in fig. 4; see abstract), said transceiver subassembly comprising:

a substrate carrier 140 including at least one alignment aperture 84,94,96,210,208 extending through the substrate carrier 140 and fabricated on said silicon substrate carrier 140, using photolithographu technique (see col. 12: lines 23-32 and lines 65-67); an optoelectronic device 40 comprising said set of photoactive components 42/44 which is precisely mounted on said substrate carrier 140 with reference to said at least one alignment aperture 84,94,96,210,208 (shown in fig. 4, item 40 in alignment with reference to alignment aperture 84,94,96,210,208);

at least one guide pin 90,92 mounted so as to extend through said at least one alignment aperture 94,96 and mate with said at least one alignment hole 124,126 in said optical ferrule 100 for aligning said substrate carrier 140 with said optical ferrule 100 (shown in fig. 4 and 5, item pins 90/92 with apertures 94/96 in carrier substrate 140 with alignment with ferrule 100 through holes 124,126) and said set of photoactive components 42,44 with said set of optical fibers 28 (shown in at least fig. 4 and 5, item guide pins 90/92 for aligning the carrier 140 and ferrule 100):

and a support block 200 attached to said substrate carrier 140 and including at least one support passage for securely supporting said at least one guide pin 206,207 in alignment with said substrate carrier 140 (see fig. 4, items guide pins 206,207 in

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aligning support 200, including at least two passages in substrate, with that of carrier 140).

However, in above embodiment Williams does not teach wherein the above substrate carrier is of silicon and also includes at least one alignment mark for use in mounting said optoelectronic device. Nevertheless, in another embodiment Williams states that the base plate/substrate can be made from silicon and that alignment channels/holes such as 208, 209 are used for alignment and support of the carrier with respect to support substrate (see at least col. 9, lines 61-64; note that support substrate 200 also align photoelectric device as shown in at least fig. 4 with that of the carrier 140). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to modify the substrate material and its etching process in the first embodiment of Williams using silicon material taught by Williams in another embodiment as well as using alignment holes/channels such as 208 and 210 as alignment marks for alignment purpose in order to produce a fiber optic communication module that includes the above limitations since the above embodiments having substantially similar alignment structures are compatible with each other and that using alignment marks in alignment carriers are *conventional*, since such/resultant fiber optic communication module would be cost effective, and would improve and simplify the coupling of various optical devices in a high density array of photoactive elements (see col. 2, lines 57-67).

***Citation of Relevant Prior Art***

4. Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

Mesaki et al. Teaches alignment marks in an optical carrier

Ogawa et al. 5536466 Teaches transparent film deposition on a substrate using photolithography

Isaksson et al. 6130979

Jiang et al. 6085007 Teaches VCSELs and PIN photodiodes in a FO alignment structure

Yamaguchi 5917976

These references are cited herein to show the relevance of the apparatus/methods taught within these references as prior art.

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**Contact Information**

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is (571) 272-2417.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (571) 272-2415.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9306 (for formal communications intended for entry)

**or:**

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.



K. Cyrus Kianni  
Patent Examiner  
Group Art Unit 2877

Frank Font  
Supervisory Patent Examiner  
Group Art Unit 2877

April 27, 2004